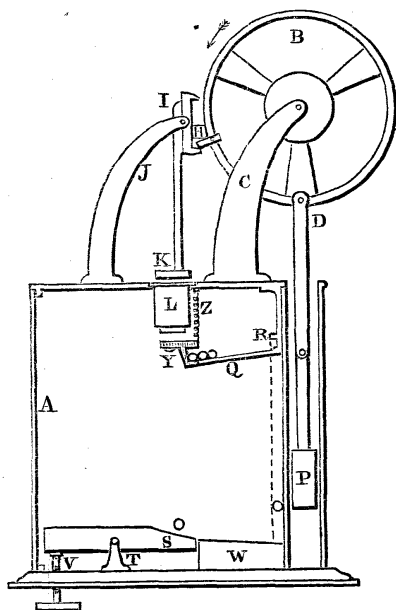


D, a rod carrying the permanent magnet P, which slides up and down against outside of case.



H, is the pin of C, which engages the escapement I (J its support) to which is attached the armature K acted on by the electro-magnet,

L, within the case. *Inside* the case are also,—

Y, the release-piece with its spring Z:

O, a lever turning on centre T and resting in its normal position on the screw V, by which the circuit is closed between battery and magnet:

W, the lower inclined plane.

R, a stop just above Q, and,

Q, the upper incline.

Y is supported by two standards, not shown in diagram, constructed on principle of gridiron pendulum, so that its height may be the same at all temperatures. For the sake of clearness the electrical connexions are also omitted.

The action of the apparatus is as follows:—

A ball having fallen, immediately that it meets S, it breaks contact, the piece Y tilting sideways then instantly disengages another ball, and the escapement armature K no longer being held by the magnet, allows the wheel B to be turned once by the clock train, this raises the magnet P, drawing up the ball on W until it meets the stop R, which releases it from the magnet, and leaves it to roll against a stop-pin and against Y, and lets (P) down again; meanwhile the ball which fell has rolled down S and W into position to be picked up in its turn, and S being relieved of its weight, contact is restored; when the next ball strikes S the same movements take place. A guard-pin prevents more than one ball being liberated at once by Y. Of course L must be so placed as not to act directly on the balls.

Trinity College, Cambridge, May 6, 1871.

On Argús. By J. Tebbutt, Esq.

The accompanying table exhibits the results of comparisons of *Argús* made by me during the period 1854–1870. The magnitudes of the comparison stars employed down to the end of 1863, have been taken from Tables A and C on pp. 334, 341, of Sir J. Herschel's *Results of Astronomical Observations at the Cape of Good Hope*, 1834–8. For all the observations since

that year magnitudes have been assigned to the comparison stars in accordance with my own estimates. I have divided the series of observations into groups, each group having concluded magnitudes nearly agreeing with one another. The mean date and magnitude for each group have then been determined. On projecting these results in a curve, it will be seen that during the past three years there have been small annual fluctuations in the light of the star. Whether the curve represents with any approach to accuracy the real fluctuations in the light of the Variable must, of course, depend on the value to be attached to my judgment in the comparison observations. Of this, however, I am quite certain, that η Argûs has been alternately above and below a mean magnitude during the past three or four years, and that the limit of these fluctuations from maximum to minimum is about a quarter of a magnitude. For the past three years the star has been invisible to the naked eye.

In conclusion, I may state that of the stars contained in the Catalogue on p. 42 of the work before referred to those numbered 387 and 522 are very nearly equal, the latter being somewhat the brighter. These stars are marked in the Catalogue as of the 6th and 7th magnitude respectively. 1203 is considerably brighter than 1183, although the catalogue gives 7 and 6 as their respective magnitudes.

Dates of the Comparisons.								Mean Date of Comparison		Mean of concluded Mags.
								Year	Day	
1854	July 5	..	..	..	..	..	..	1854	186	1.10
1860	May 4, 18..	..	..	..	..	..	..	1860	132	3.41
1862	Jan. 23, 26; June 23; July 3, 4, 7, 10, 11, 15, 16, 17, 18, 22, 24, 25, 26; Aug. 22, 27, 28..							1862	184	4.57
1863	April 15, 16; May 24	..	..	..	..	..	..	1863	118	4.66
1864	March 23; April 23; May 6, 11, 31; July 28							1864	136	5.13
1865	Feb. 22, 23, 24; March 14	..	..	..	..	..	..	1865	59	5.25
1866	Feb. 16; March 22; June 29; July 2, 4	..	..	..	..	..	..	1866	135	5.52
1866	Dec. 3, 8, 11, 12. 1867, Jan. 12, 26; March 2; April 17; May 4; July 27	..	..	..	..	..	..	1867	45	6.04
1867	Dec. 28, 31	..	..	..	..	..	..	1867	364	6.35
1868	Feb. 26, 27	..	..	..	..	..	..	1868	58	6.20
1868	April 13, 22, 29, May 9, 16, 19, 22, 26; June 12; July 21, 31; August 24; Dec. 17	..	..	..	..	..	..	1868	169	6.30
1869	Feb. 8, 18, 23	..	..	..	..	..	..	1869	47	6.20
1869	March 10; April 19; May 19	..	..	..	..	..	..	1869	106	6.32
1869	May 26; June 25; July 23; August 10; Sept. 6, 21; Dec. 6, 25. 1870, Jan. 8, 13..	..	..	..	..	..	..	1869	271	6.39
1870	Jan. 22, 28; Feb. 8, 25; March 25, 26	..	..	..	..	..	..	1870	52	6.25
1870	May 7; June 3, 6, 7, 16; July 4; August 20, 25; Sept. 26, 27	..	..	..	..	..	..	1870	196	6.40
1870	Nov. 28; Dec. 6, 29	..	..	..	..	..	..	1870	345	6.25

Windsor, N. S. Wales, February 23, 18. 1.